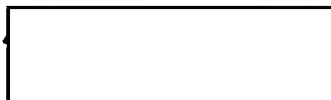**DD/M&S Registry**
File _O+K12-2_
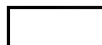
5 March 1974

(D/JCS & D/OC)

Attached is for your

information and compliance as

appropriate.

STATINTL

Att: DDM&S 74-0800

DD/M&S-IPC

STATINTL

Distribution:
  Orig Transmittal Slip - D/OJCS w/Att.
  Orig   "   "   - D/OC w/Att.
          1 - DDM&S Subject w/Att.
          1 - DDM&S Chrono
          1 - PS

74-0800 - Memo dtd 4 Mar 74 to IPC's fr Comptroller;
          subj: Standardization of Data Elements and
          Representations.
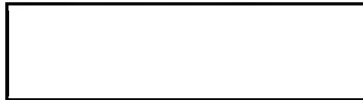
5 March 1974

Director of Logistics   (D/Security)

Attached is for your

information.

STATINTL

Att: DDM&S 74-0800

DD/M&S-IPC

STATINTL

Distribution:
  Orig Transm. Slip - D/OL w/Att.
  Orig Transm. Slip - D/OS w/Att.
               1 - DDM&S Subject w/Att.
               1 - DDM&S Chrono
               1 - PS

5 March 1974

Chief, ISAS

2E-42   Hqs.

Gail:
    Attached is for your infor-
mation. I don't know where you
stand with Jack Iams on the proposal
that you assume some of the duties
performed by the IP Staff in the
Office of the Comptroller. This
may be relevant.

STATINTL

Att: DDM&S 74-0800

DD/M&S-IPC

STATINTL

Distribution:
  Orig Trans Slip - 2 C/ISAS w/Att.
                    1 - DDM&S Subject w/Att.
                    1 - DDM&S Chrono
                    1 - PS

DD/M&S _74-0380_

COMPT _74-0282_

4   MAR 1974

MEMORANDUM FOR: Information Processing Coordinators

SUBJECT: Standardization of Data Elements and Representations

Background

1. Under the terms of Executive Order 11717, dated May 9, 1973, certain functions were transferred from the Office of Management and Budget to the Department of Commerce. Among these were those relating to establishing and approving Government-wide ADP standards. OMB Circular A-86, dated 30 September 1967 (see Attachment 1) Subject: Standardization of Data Elements and Codes In Data Systems, was rescinded 29 August 1973. The Department of Commerce subsequently issued Part 6 of Subtitle A of Title 15, Subject: Standardization of Data Elements and Representation (see Attachment 2). This regulation became official on its publication in the Federal Register 5 December 1973.

Point of Contact

2. The designated point of contact within CIA on matters relating to the new regulation is the Comptroller, Central Intelligence Agency, Washington, D. C., 20505.

Scope

3. Changes in the scope of the new regulation compared to A-86 are discussed on pages iii, iv, and v of Attachment 2. There are no changes which would affect those methods and procedures currently in use in CIA, stemming from past implementation of A-86.

Responsibility

4. Overall Agency responsibility for the implementation of the new regulation is vested in the CIA Comptroller. This responsibility is in turn delegated to the Information Processing Coordinators.

STATINTL

JOHN D. IAMS
Comptroller

Attachments:
  As stated

g. Consideration of the potential impact of the introduction of ADP equipment on the agency work force and taking such steps as are necessary to alleviate adverse effects to the greatest extent practicable.

h. Participation in Government-wide studies and programs for improving the administration and management of automatic data processing activities in the executive branch.

8. Effective date. The provisions of this Circular are effective immediately.

KERMIT GORDON
Director

4.7. OMB Circular A–86, Standardization of data elements and codes in data systems (September 30, 1967)

EXECUTIVE OFFICE OF THE PRESIDENT

BUREAU OF THE BUDGET.
WASHINGTON, D.C. 20503

September 30, 1967

CIRCULAR NO. A–86

TO THE HEADS OF EXECUTIVE DEPARTMENTS AND ESTABLISHMENTS

SUBJECT: Standardization of data elements and codes in data systems

1. Purpose. This Circular identifies responsibilities and provides policies and guidelines for the management of activities in the executive branch regarding the development and application of standard data elements and their related codes in data systems.

This Circular is issued under the authorities of Sections 103 and 104 of the Act of September 12, 1950 (31 U.S.C. 18a and 18b), Executive Order No. 10253 dated June 11, 1951, and the Act of October 30, 1965 (Public Law 89–306). This Circular complements the standards and recommendations that have been or may be issued under the statistical procedures prescribed by Circular No. A–46. Data elements and codes which are required to be unique for use in cryptologic activities are excluded from the provisions of this Circular.

2. Background. Technological advances in computers, communications and allied fields make possible the integration of data systems and the aggregation and exchange of data among them on an expanding scale. These advances have contributed to substantial cost reductions and improvements in systems and services. The full effect of these advances will not be realized, however, unless the need for uniform understanding (definition) of the common information (data elements) and expression of them (codes) in data systems is recognized and a means provided to develop and apply desirable standards. There are increasing interrelationships developing among the data systems of Federal, State and local governments, and with industry and the public, that add emphasis and dimension to this need.

3. Objectives. The ultimate goal is to achieve the greatest practicable degree of uniformity in data elements and codes used among related data systems. The chief objectives are—

a. to facilitate the summation of information and thereby enhance the exchange of information among data systems;

b. to facilitate the review and analysis of the budget processes and programs of the executive branch concerning more than one agency;

c. to encourage the extension of the principle of systems integration under which information can directly be communicated among data systems without interrupting the process for translations or conversions; and

d. to contribute to improving the products and effectiveness of data systems.

4. Definitions. For the purpose of this Circular, the terms "data element" and "data code" are defined as follows:

a. A data element is a grouping of informational units which has a unique meaning based on a natural or assigned relationship and subcategories (data items) of distinct units or values. For example, "month" is a data element whose data items are "January," "February," "March," etc.

b. A data code is a number, letter, symbol or any combination thereof used to represent a data element or a data item.

5. Kinds of standards. For the purpose of this Circular, the kinds of standard data elements and codes are identified as follows—

a. International standards. A wide range of standards, including data elements and codes, having broad acceptance and the approval of the International Standards Organization, for voluntary use by a community of nations.

b. United States of America standards. A wide range of standards, including data elements and codes, having broad acceptance and the approval of the United States of America Standards Institute (formerly the American Standards Association), for voluntary use by Government and industry on a national scale.

c. Federal standards (data elements and codes). Standards, promulgated under the provisions of this Circular, for use in the executive branch. In terms of application, there are two categories of Federal standards—

(1) General use. Federal general standards (such as for countries, States, counties, places, organizations, individuals and elements of time) for general use by most agencies in connection with an extensive number and variety of related or unrelated data systems and programs.

(2) Program use. Federal program standards for use in particular related programs concerning more than one agency. Examples are data elements and codes usually limited to use in weather, personnel, supply, and other similarly unique systems. In these cases, the same source data often are used by several agencies and aggregation and exchange of information on a program basis are the rule.

d. Agency standards (data elements and codes). Standards limited for use within the programs of a particular agency and either not applicable to or not yet incorporated into a Federal standard.

6. Policies. The following policies apply to the development and application of standard data elements and codes under this Circular—

a. Data elements and codes that can effectively be applied to the data systems of more than one agency will be promulgated as Federal standards. Federal general standards will be promulgated by or at the direction of the Bureau of the Budget.

Federal program standards will be promulgated by the agency determined by the Bureau of the Budget to have the predominant interest in particular standards.

b. Expected technical, operating or economic benefits, or improvements in services are to be considerations in the decision to adopt particular standards.

c. Data elements and codes already in use will be adopted as Federal standards wherever practicable if they meet Federal requirements. United States of America or International standards will also be adopted under the same circumstances.

d. Promulgation of standards under this Circular will include a specification of applicability and a time-phased implementation schedule.

7. **Responsibilities.** Responsibilities under this Circular are outlined below. Exhibit 1 depicts these responsibilities in terms of actions taken in respect to the kinds of standards involved.

a. **Bureau of the Budget.** The Bureau of the Budget will provide leadership of a program for standardizing data elements and codes for use in the executive branch and in this connection will—

(1) Utilize the Federal Automatic Data Processing Advisory Council to advise the Bureau of the Budget regarding standards activities covered by this Circular.

(2) Arrange for appropriate departments and establishments to develop and maintain specific Federal general and Federal program standards.

(3) Arrange for liaison with organizations representing industry and State and local governments on standards of mutual interests.

(4) Approve, and arrange for the promulgation of Federal general standard data elements and codes covered by this Circular.

(5) Publish (with periodic revisions) a list of agency points of contact (see paragraph 7b.(8)).

(6) Provide for the preparation of guidelines and criteria to assist agencies, task forces and equivalent groups in developing standards.

b. **Departments and establishments.** Each agency will—

(1) Use the Federal standards announced under the provisions of this Circular whenever data are exchanged between and among agencies and to the maximum possible extent in meeting its own data system requirements.

(2) Assume such responsibilities as may be requested under paragraph 7a.(2) for organizing and chairing Government task forces or equivalent groups to develop and maintain Federal standards.

(3) Conduct the analyses necessary to provide recommendations to the Bureau of the Budget on specific Federal general standards assigned under paragraph 7a.(2). Included will be a summary of the agency consensus reached and the objections recorded or exceptions requested (and if and how they were satisfied), the scope of applicability, a time-phased plan for implementation, the benefits to be expected and cost implications.

(4) On its own initiative, or at the request of the Bureau of the Budget, conduct the analyses necessary, with participation of interested agencies, to develop appropriate Federal program standards and announce, implement and maintain such standards as are agreed upon among the agencies principally concerned. The agency points of contacts (see paragraph (8) below) are to keep the Bureau of the Budget informed on the progress and results of such efforts. Such standards as are approved will be forwarded to the National Bureau of Standards for inclusion in the Register of Program Standards.

(5) Develop Agency standards for data elements and codes where operations or services can be improved and there is no conflict with existing or proposed Federal general or Federal program standards and provide (with periodic revision) to the National

Bureau of Standards the title and definition of such agency standards in effect in or under consideration by the agency.

(6) Provide appropriate representation on Government task forces or equivalent groups as may be established to develop Federal general or Federal program standards. Such representation should be from organizations having the predominant or a substantial interest.

(7) Recommend to the Bureau of the Budget actions to improve the program as a whole and areas having a potential for the development of standards.

(8) Designate a single office as the central point of contact on matters pertaining to this Circular.

c. **National Bureau of Standards.** The National Bureau of Standards will—

(1) Maintain a "Register of Data Elements and Codes—Federal General Standards." The Register will serve to record and codify Federal general standards approved under this Circular. The Register will be either the media for publishing announcements of Federal general standards or the point of identification and reference to the source if elsewhere published.

(2) Maintain a "Register of Data Elements and Codes—Federal Program Standards." The Register will serve to record and codify Federal program standards approved for use by agencies responsible for such standards. The Register will be either the media for publishing announcements of Federal program standards or the point of identification and reference to the source if published elsewhere.

(3) Maintain a "Reference File of Data Elements and Codes—Agency Standards." This file will identify Agency standards in effect and areas in which agencies are investigating adoption of standards. It will serve as an inventory of Agency standards and efforts to develop standards. The publication of Agency standards is the responsibility of agencies.

(4) Maintain an "Informational Register of Data Elements and Codes—International and American Standards." This register will identify standard data elements and codes that have been approved by the International Standards Organization or the United States of America Standards Institute or that may at any one time be the subject of development by them. It will serve as a point of inquiry for agencies regarding the status of such efforts. An abstract of the Informational Register will be distributed annually or more often if advisable to the central points of contact identified in paragraph 7b.(8)

(5) Provide technical advice and assistance, relating to automatic data processing and related data systems, to task forces or equivalent groups as may be established to develop Federal general and Federal program standards.

d. **Development of United States of America Standards.** The United States of America Standards Institute may from time to time request Government participation to develop particular American Standards for data elements and codes. In such cases, a "senior representative" will be named whose function will be to coordinate Federal participation to assure that all the factors essential to Government interests are brought to bear on the deliberations of the Institute.

(1) Where a Government or interagency task force or equivalent group exists, to develop a Federal standard for the same or similar purpose, the Chairman thereof should assume the role of senior representative.

(2) Where such a task force or equivalent group does not exist, the Bureau of the Budget will arrange that an agency, having the predominant or a substantial interest, name the senior representative.

8. Promulgation, implementation and maintenance of Federal general standards. The Bureau of the Budget will promulgate Federal general standards for data elements and codes by arranging for the issuance of announcements by the National Bureau of Standards. In addition to the Federal general standard(s), the announcements will include—

a. an identification of the agency that will maintain the standard(s).
The named agency should keep current with the progress of implementation.

b. a specification of applicability and authorized exceptions, and

c. time-phases within which the standard(s) will be implemented.

9. Exceptions, deferments and revisions of Federal general standards. The procedure for requesting exceptions or deferments or for recommending revisions to Federal general standards is as follows—

a. Requests for exceptions, not covered in an announcement, will be directed to the agency responsible for the standard. That agency will add its recommendations and forward it to the Bureau of the Budget.

b. Requests for deferments, regarding implementation dates contained in an announcement, will follow the procedure prescribed for exceptions when the request is for a deferment of over one year. Departments and establishments may revise implementation dates for good cause where the deferment does not exceed one year by forwarding a notification of such action to the agency responsible for the standard, stating the circumstances involved.

c. Recommendations for revisions to standards already announced will be directed to the agency responsible for the standard. That agency will utilize a task force, an ad hoc group, or take other appropriate steps to consider the proposal and formulate its recommendations to the Bureau of the Budget.

10. Promulgation, implementation and maintenance of Federal program standards. Agencies that have assumed the responsibility under the provisions of paragraph 7b.(4) to develop Federal program standards are also responsible for their promulgation, implementation and maintenance. Promulgation of Federal program standards will follow the same procedure and be of the same content as for Federal general standards identified in paragraph 8.

11. Exceptions, deferments and revisions of Federal program standards. Requests for exceptions or deferments or recommendations for revisions to Federal program standards are to be directed to the agency that has promulgated the standard. That agency is responsible for taking final action on the requests and recommendations.

CHARLES L. SCHULTZE
Director

Attachment

43

EXHIBIT 1
Circular No. A-86

PROGRAM FOR DEVELOPING STANDARD DATA ELEMENTS AND CODES

TYPES OF ACTIONS	KINDS OF STANDARDS			
	Federal General Standards	Federal Program Standards	Agency Standards	American Standards [1]
Initiation of efforts	BOB	Program Agency (or BOB)	Option of agency concerned	USASI
Method of development [2]	Government Task Force (or equivalent)	Interagency effort	Option of agency concerned	X3.8 Sub-committee of USASI
Recommendations	To BOB	To Program Agency	Option of agency concerned	To X3 Committee of USASI
Approval	BOB	Program Agency	Agency	USASI
Maintenance	Named Agency	Program Agency	Agency	As necessary
Publication: a. Preparation and distribution	NBS	Program Agency	Agency	USASI
b. Registration	NBS "Register of Federal General Standards"	NBS "Register of Federal Program Standards"	NBS "Reference File of Agency Standards"	NBS "Information Register of USASI Standards"

[1] Industry and Government participation at all stages.
[2] Agency, intergovernmental, and other representation as appropriate.

THE SECRETARY OF COMMERCE
Washington, D.C. 20230

November 28, 1973

PPB 73-1649

MEMORANDUM FOR   Heads of Departments and Agencies

SUBJECT: Standardization of Data Elements and Representations

I am forwarding to you the text of a new regulation being issued by
the Department of Commerce which will appear in the Federal Register.
This regulation provides policy and identifies executive branch
responsibilities for a government-wide program for the standardization
of data elements and representations used in Federal automated data
systems.   This regulation supersedes and replaces Office of Management
and Budget Circular No. A-86 which was rescinded on August 29, 1973,
following the transfer of OMB functions for ADP standards to the
Department of Commerce under the provisions of Executive Order 11717
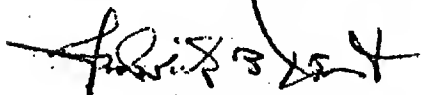of May 9, 1973.

The principal objective of standardizing data elements and representations
is to make maximum utilization of the data resources of the Federal
Government and to avoid unnecessary duplications and incompatibilities
in the collection, processing and dissemination of data.   The program
is intended to benefit each department and independent agency through
improved utilization of its automatic data processing systems and to
benefit the Federal Government and public at large through the effective
interchange and sharing of data by government activities and by state
and local governments, industry and the public.

In carrying out the objectives of this program, it is necessary that
appropriate implementing directives be issued by each department and agency.
Accordingly, it is requested that you submit to the Director of the Institute
for Computer Sciences and Technology, National Bureau of Standards within
120 days two copies of the internal directives or issuances that will
implement this new regulation within your department or agency.

2

In providing the leadership for this standardization program, I must rely upon the strength, cooperation and support of each department and independent agency. Any suggestions you may have for improving the attached regulation or the standardization program including proposed subjects for future standardization will be welcome.

Secretary of Commerce

Enclosure

Title 15 – Commerce and Foreign Trade

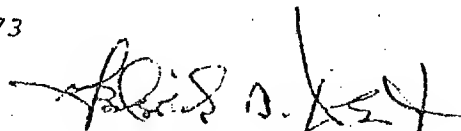*Subtitle A – Office of the Secretary of Commerce*

PART 6 – STANDARDIZATION OF DATA ELEMENTS AND REPRESENTATIONS

Pursuant to the authority delegated to the Secretary of Commerce by Executive Order 11717 (38 FR 12315, dated May 11, 1973), Subtitle A of Title 15 of the Code of Federal Regulations is hereby amended to add a new Part 6 which implements the provisions of Section 111 (f) (2) of the Federal Property and Administrative Services Act of 1949, as amended (79 Stat. 1127). This new Part 6 supersedes and replaces in its entirety the provisions of Office of Management and Budget Circular A-86 entitled, "Standardization of data elements and codes in data systems", dated September 30, 1967 which was rescinded by the Director of the Office of Management and Budget on August 29, 1973 through a letter to the Heads of Executive Departments and Establishments, same subject.

Part 6 provides policy and identifies responsibilities of executive branch departments and independent agencies for a government-wide program for the standardization of data elements and representations used in Federal automated data systems. The principal features of Part 6 are described in the attached explanatory statement.

Part 6 shall become effective upon publication in the Federal Register.

Issued: November 28, 1973

Secretary of Commerce

EXPLANATORY STATEMENT

Public Law 89-306 (79 Stat. 1127) of October 30, 1965, amended Title I of the Federal Property and Administrative Services Act of 1949 (63 Stat. 377) and made provision for the economic and efficient purchase, lease, maintenance, operation and utilization of automatic data processing equipment by Federal departments and agencies.

Pursuant to this statute, the Secretary of Commerce is authorized (1) to provide agencies and the Administrator of General Services with scientific and technological advisory services relating to automatic data processing and related systems, and (2) to make appropriate recommendations to the President relating to the establishment of uniform Federal automatic data processing standards. The Secretary of Commerce is also authorized to undertake necessary research in the sciences and technologies of automatic data processing computer and related systems. The authority conferred upon the Secretary of Commerce is exercised subject to the direction of the President and to fiscal and policy control exercised by the Office of Management and Budget.

By letter to the Secretary of Commerce from the Acting Director of the Office of Management and Budget, dated December 15, 1966, policy guidance was provided concerning the implementation of Public Law 89-306 (79 Stat. 1127). This policy guidance provided

i

guidelines on the development of voluntary commercial standards
and recommendations for uniform Federal standards. The stan-
dardization of data elements and codes was excluded in this
policy guidance letter.

The Office of Management and Budget on September 30, 1967, issued
Circular A-86 entitled "Standardization of data elements and codes
in data systems." This Circular (A-86) identified responsibilities
and provided policies and guidelines for the management of activities
in the executive branch regarding the development and application of
standard data elements and their related codes in data systems. The
Office of Management and Budget retained the function of providing
leadership of the standards program within the executive branch on
this subject.

On April 30, 1971, in a memorandum to the Director, Office of
Management and Budget, the President authorized and empowered the
Director to act finally on behalf of the President, upon recommen-
dations concerning the establishment of automatic data processing
standards for use by Federal agencies. Executive Order 11717 of
May 9, 1973, transferred to the Secretary of Commerce all functions
being performed on that date by the Office of Management and Budget
relating to the establishment of government-wide automatic data
processing standards, including the function of approving standards
on behalf of the President. In this Executive Order (11717) the
Director of the Office of Management and Budget retained oversight
responsibilities for the transferred functions.

ii

On August 29, 1973, in a letter to the Heads of Executive Departments and Agencies, the Director of the Office of Management and Budget rescinded OMB Circular No. A-86 and stated that revised policies and procedures in regard to the standardization of data elements and codes would be issued by the Department of Commerce. This amendment to Title 15 of the Code of Federal Regulations to add Part 6 is the embodiment of this direction provided by the Director of the Office of Management and Budget.

The new Part 6, in addition to incorporating the general provisions of the rescinded Office of Management and Budget Circular No. A-86, provides clarifications and other changes deemed essential and appropriate for the effective management and operation of a standards program for data elements and codes. The principal changes and additions to Office of Management and Budget Circular No. A-86 provided in the new Part 6 are identified and described below:

Title — Standardization of Data Elements and Representations

The designation of the Part "Standardization of Data Elements and Representations" is a change to the title of Office of Management and Budget Circular No. A-86. The use of the term "representations" is a broader term than "codes" in that it includes codes, abbreviations, names and numeric values. It also avoids confusion with other uses of the term "codes" as in character codes, self-checking codes, redundancy codes and programming codes.

§6.1   Purpose

This section indicates the transfer of functions prescribed in
Executive Order 11717 and defines the relationship of the provisions
of the Part to Office of Management and Budget Circular No. A-46.

§6.4   Glossary

This section provides clarification of terms and adds new terms
needed to describe data standards. The terms used are those defined
in Federal Information Processing Standard 20, "Guidelines for
Describing Information Interchange Formats" which has been addi-
tionally approved by the American National Standards Institute as
a voluntary national standard (X10.1-1973). These terms are provided
in an appendix as noted in §6.4.

§6.5   Types of Standards

This section provides for two additional types of standards (i.e.,
De facto practices and Unit standards).

§6.6   Policies

This section provides for a relative ranking of the types of
standards; the need to assure that applicable statutes, regulations
and Executive Orders are complied with to protect sensitive and
classified data files; and the requirement to cooperate with
affected activities outside the Federal Government in the devel-
opment and implementation of data standards.

§6.7 *Responsibilities*

This section lists the responsibilities of the Department of Commerce and Executive Branch departments and agencies. In addition to the responsibilities for maintaining registers and providing advisory services as in Office of Management and Budget Circular No. A-86, the National Bureau of Standards is assigned the major operational functions for the standardization of data elements and representations. The Secretary of Commerce approves Federal general and Federal program standards.

The responsibilities of Federal departments and independent agencies are for the most part a continuation of responsibilities reflected in the rescinded Office of Management and Budget Circular No. A-86. The need to assess the impact, benefits and problems related to the implementation of approved standards is a new responsibility.

§6.8 *Exceptions, Deferments and Revisions of Federal Standards*

This section is a change from Office of Management and Budget Circular No. A-86 in that all such requests are coordinated in advance with the National Bureau of Standards rather than with various Government agencies.

§6.9 *Effect On Previously Issued Standards*

This section continues the standards previously approved under the provisions of Office of Management and Budget Circular No. A-86.

v

Subtitle A of Title 15 of the Code of Federal Regulations is amended by adding a new Part 6, reading as follows:

PART 6 — STANDARDIZATION OF DATA ELEMENTS AND REPRESENTATIONS

Sec.

AUTHORITY: The provisions of this Part 6 issued under 79 Stat. 1127; Executive Order 11717, dated May 9, 1973 (38 FR 12315, dated May 11, 1973).

§6.1   Purpose

The purpose of this Part is to implement the provisions of Section 111 (f) (2) of the Federal Property and Administrative Services Act of 1949, as amended (79 Stat. 1127) and Executive Order 11717 of May 9, 1973 (38 FR 12315, dated May 11, 1973). It supersedes and

replaces in its entirety Office of Management and Budget Circular
A-86 entitled, "Standardization of data elements and codes in data
systems", dated September 30, 1967. Office of Management and Budget
Circular No. A-86 was rescinded by the Director of Office of Man-
agement and Budget on August 29, 1973.

This Part identifies responsibilities and provides policies and
guidelines for the management of activities in the Executive Branch
relating to the development, implementation and maintenance of
standards for data elements and representations used in automated
Federal data systems. Its provisions complement the standards and
recommendations that have been or may be issued under the statistical
procedures prescribed by Office of Management and Budget Circular
A-46.

§6.2 Background

Recent advances in computer and communications technologies have
made possible the wider use of data and programs that are developed
or generated to meet mission requirements of Federal departments,
agencies, and activities. While the extended use of these data and
programs can contribute to reduced costs in Government operations and
improved services, the full advantages of these new technical capa-
bilities cannot be realized until standards are developed and imple-
mented which will provide for the uniform identification, definition
and representation of data. These standards for data must also be

accompanied by supporting standards for representing graphic characters (alphabets, numbers, and other symbols), communications and device controls. In addition, it is essential to have standards that provide for interchangeable media (e.g., tapes, cassettes and disks) covering both physical and logical specifications.

There is an ever increasing need to interchange data and programs with state, local and other governments, and with industry and the public. This adds further emphasis and dimension to the need for responsive standards that will facilitate interchange.

This Part defines a Federal-wide program for standardizing data elements and representations which are used and interchanged in Government data systems. Other approved standards and guidelines issued by the National Bureau of Standards in the Federal Information Processing Standards series of publications address related ADP subjects and areas.

§6.3 Objectives

The principal goal in standardizing data elements and representations is to make maximum utilization of the data resources of the Federal Government and to avoid unnecessary duplications and incompatibilities in the collection, processing, and dissemination of data.

§6.4 Glossary

Appendix A of this Part provides a glossary of terms as used in this Part and in descriptions of data.

§6.5 *Types of Standards*

For the purposes of this Part, the following types of practices

and standards are identified for data elements and representations:

(a) De facto Practices. Those data elements and representations

in current use that have not been subjected to official or formal

standardization.

(b) Unit Standards. Those data elements and representations that

have been approved by an authorized official for use within that unit.

(A unit for purposes of this Part is any Federal organization within

the executive branch of the Government, which is at a lower organi-

zational level than an executive department or independent agency).

(c) Agency Standards. Those data elements and representations

that have been approved by an authorized official for use within an

executive department or independent agency.

(d) Federal Program Standards. Those data elements and represen-

tations that have been approved by the Secretary of Commerce for use

in a particular program or mission where more than one executive

branch department or independent agency is involved with their use.

For example, those standards that could be approved and prescribed

for use are those which include, but are not limited to, Federal-wide

personnel, communications and transportation data systems.

(e) Federal General Standards. Those representations that have

been approved by the Secretary of Commerce for Federal-wide use by

executive departments and independent agencies in all Federal-wide

programs and for use in all Federal data systems. For example, this includes such representations as calendar dates, state abbreviations and codes, and codes for standard metropolitan statistical areas.

(f) American National Standards. Those data elements and representations that have been approved for voluntary national use by the American National Standards Institute.

(g) International Standards. Those data elements and representations that have been approved by the International Organization for Standardization (ISO), for voluntary use by member nations and international organizations.

§6.6 Policies

The following policies apply to the development, implementation, and maintenance of data element and representation standards:

(a) Data Elements and representations that are prescribed for interchange among more than one executive department or agency or with the private sector including industry, state, local, or other Governments, or with the public at large will be considered for standardization as either Federal general or Federal program standards.

(b) Federal general standards are the highest level standards followed by Federal program standards, agency standards and unit standards in that order. This order establishes a precedence for standards use. For example, a Federal general standard will be used and will supplant a Federal program, agency or unit standard. Likewise a Federal program standard takes precedence over an agency or unit standard.

(c) Approved standards will be implemented by all Federal agencies in all circumstances where technical, operating and economic benefits can be expected to result. These standards will be considered on the basis of their long term benefits and advantages to the Government at large. Local inconveniences or short-term conversion costs need to be recognized, but such factors will not be considered overriding deterrents to the development, implementation, and maintenance of standards that are capable of reducing overall government operating costs or providing improved Government services.

(d) Existing standards will be considered for adoption as Federal general or program standards when these are determined to meet Federal requirements or can readily be adapted to do so.

(e) Approved standards and revisions thereto will be implemented on a time phased basis in order to minimize disruption and conversion costs. Conversion costs will be identified and considered in the submissions of annual budget estimates.

(f) Although data element and representation standards are developed and implemented to provide for the effective interchange and processing of data, Federal departments and agencies must comply with applicable statutes, regulations and executive orders to assure that sensitive or classified data are adequately protected and that only authorized disclosure or release of such data is allowed.

(g) In the formulation of standards for data elements and representations which will have implementation impact on state and local governments, industry or other segments of the private sector,

arrangements will be made to establish necessary liaisons and coordinations with these interests to consider their needs and potential problems in responding to Federally imposed reporting requirements.

§6.7 Responsibilities

Responsibilities for the standardization of data elements and representations are outlined below:

(a) Department of Commerce. The Department of Commerce will provide leadership of an executive branch program for standardizing data elements and representations. Within the Department the following specific responsibilities are assigned:

(1) Secretary of Commerce. The Secretary of Commerce, on behalf of the President, approves all Federal Information Processing Standards. For data elements and representations, this approval will include both Federal general and Federal program standards.

(2) National Bureau of Standards. The National Bureau of Standards will:

(i) Arrange with appropriate executive branch departments and independent agencies to assume leadership and undertake responsibilities for the development and maintenance of specific Federal program and Federal general standards.

(ii) Arrange for the publication and promulgation of approved Federal general and Federal program standards. These will be promulgated by the National Bureau of Standards as Federal Information Processing Standards. The responsibility under this subparagraph includes the authority to modify or supersede these standards whether issued under this regulation or prior to the effective date of this regulation.

(iii) Maintain and promulgate selected registers of data element and representation standards and practices that are under development or are in current use.

(iv) Provide procedures, guidelines and criteria to assist Federal departments and agencies in the development, implementation, and maintenance of standards.

(v) Provide technical assistance, as requested and within the limits of available resources to Federal departments and agencies on matters concerning the utilization of automatic data processing and standardization.

(vi) Arrange for the assessment of the need, impact, benefits and problems related to the implementation of proposed and approved standards.

(vii) Coordinate requests for exceptions to and deferments on the implementation of approved Federal standards.

(viii) Arrange for and coordinate appropriate Federal representation and participation on voluntary industry committees.

(ix) Arrange for appropriate liaison with state, local and other governments on matters of mutual interest or concern relating to Federal development, implementation, and maintenance of standards.

(b) Departments and Independent Agencies. Each of these organizations will:

8

(1) Implement approved Federal standards that are announced under the provisions of this Part and assist the National Bureau of Standards in the assessment of the need, impact, benefits and problems related to the implementation of approved standards.

(2) Assume leadership and support of responsibilities for the development of Federal general and Federal program standards as may be mutually arranged by the National Bureau of Standards.

(3) Establish within their organizations, mechanisms for the development, implementation and maintenance of agency and unit standards where such efforts will contribute to reduced costs or improved services.

(4) Establish appropriate procedures and mechanisms within their organizations for the dissemination and implementation of approved Federal standards.

(5) Review and provide information and comments on proposed standards that are being considered for Federal adoption. This includes the analyses necessary to assess implementation impact and potential savings or improved services.

(6) Prepare and submit selected registers of data elements and representations within the data systems of the department or agency as may be arranged by the National Bureau of Standards. These registers will be used as a source reference to avoid duplication in the design of new data elements and representations and to assist in determining possible subjects for future standardization.

(7) Provide participation on committees and task groups
that may be formed to develop and maintain Federal general or Federal
program standards.

(8) Provide participation, as requested by the National
Bureau of Standards, on committees and task groups that may be
formed to develop and maintain voluntary industry standards for
use nationally and internationally.

(9) Designate an office or official to act as a single
point of contact on matters related to this Part.

§6.8 Exceptions, Deferments, and Revisions of Federal Standards

Requests for exceptions, deferments and revisions of standards will
be forwarded to the National Bureau of Standards for consideration
and/coordination. These requests will provide detailed justification
for the exception, deferment or revision deemed necessary. These
should be submitted at least forty-five days in advance of any
exception or deferral action.

§6.9 Effect On Previously Issued Standards

All standards that were issued under the provisions of Office of
Management and Budget Circular No. A-86 prior to the effective date
of this regulation remain in effect unless modified or superseded
pursuant to the provisions of this regulation.

GLOSSARY OF TERMS

This Glossary includes definitions of terms used in this Part. Additional terms applicable to data standardization are provided for purposes of clarification. The terms and definitions are either from established vocabularies or have been defined for purposes of this Part.

ATTRIBUTE DATA ELEMENT--A data element that is used to qualify or quantify another data element (e.g., "Date of Birth" and "Mailing Address" would be attribute data elements in a personnel file where the primary element(s) is/are used to identify the person).

CHARACTER TYPE--An indication of the type of characters or bytes to represent a value (i.e., alphabetic, numeric, pure alphabetic, pure numeric, binary, packed numeric, etc.).

ALPHABETIC--A representation which is expressed using only letters and punctuation symbols.

ALPHANUMERIC--A representation which is expressed using letters, numbers, and punctuation symbols.

BINARY--A representation of numbers which is expressed using only the numbers 0 and 1, e.g., 5 is expressed as 101.

NUMERIC--A representation which is expressed using only numbers and selected mathematical punctuation symbols.

PACKED NUMERIC--A representation of numeric values that compresses each character representation in such a way that the original value can be recovered, e.g., in an eight bit byte, two numeric characters can be represented by two four bit units.

PURE ALPHABETIC--A representation which is expressed using only letters.

PURE ALPHANUMERIC--A representation which is expressed using only letters and numbers.

PURE NUMERIC--A representation which is expressed using only numbers.

COMPOSITE DATA ELEMENT (DATA CHAIN)--A data element that has an ordered string of related data items that can be treated as a group or singly, e.g., a data element named "Date of Birth" could have the data items, "Year", "Month", and "Day of Month".

CONTEXT DEPENDENT DEFINITION--A statement of meaning that relies upon a situation, background, or environment for proper interpretation.

DATE CODE--A coded representation used to identify a data item. Usually codes are designed according to established rules and criteria, and only by chance form a phonetic word or phrase.

DATA ELEMENT--A basic unit of identifiable and definable information. A data element occupies the space provided by fields in a record or

blocks on a form. It has an identifying name and value or values
for expressing a specific fact. For example, a data element named
"Color of Eyes" could have recorded values of "Blue (a name)",
"BL (an abbreviation)" or "06 (a code)." Similarly, a data element
named "Age of Employee" could have a recorded value of "28 (a
numeric value)."

DATA ELEMENT ABBREVIATION--An abbreviated form of the data element
name.

DATA ELEMENT DEFINITION--A statement of the meaning of a data element.

DATA ELEMENT NAME--A name used to identify a data element.

DATA ELEMENT SOURCE--An identification of the source or provider of
the particular data element, i.e., individual, organization, sensor,
computation, etc.

DATA ELEMENT TAG (DATA ELEMENT CODE)--A symbolic tag used to identify
a data element.

DATA ITEM--The expression of a particular fact of a data element e.g.,
"Blue" may be a data item of the data element named "Color of eyes".

DATA ITEM ABBREVIATION--An abbreviated form of the data item name.

DATA ITEM DEFINITION--A statement of the meaning of a data item.

DATA ITEM NAME--A name used to identify a data item.

DEPENDENT CODE--A code that has segments which are dependent upon other segments in order to provide unique identification of the coded item. Usually, codes having classification significance are dependent codes.

FIELD--In a record, a specific area used for representing a particular category of data, e.g., a group of card columns used to express a wage rate.

FIELD LENGTH--A measure of the length (size) of a field, usually expressed in units of characters, words, or bytes.

FIELD LENGTH TYPE--An indication of whether the field of a record is fixed or variable in length.

    FIXED LENGTH FIELD--A field whose length does not vary.

    VARIABLE LENGTH FIELD--A field whose length varies. Usually, the boundaries of this type of field are identified by field separators.

FIELD SEPARATOR--A character or byte used to identify the boundary between fields.

FILLER CHARACTER--A specific character or bit combination used to
fill the remainder of a field after justification.

FORMATTED INFORMATION--An arrangement of information into discrete
units and structures in a manner to facilitate its access and
processing. Contrasted with narrative information that is arranged
according to rules of grammar. .

GENERAL DEFINITION--A statement of meaning that can be interpreted
without regard to a specific situation, background, or environment.

INFORMATION INTERCHANGE--The transfer of data representing information
between or among two or more points (devices, locations, organizations,
or persons) of the same or different (dissimilar) information system
or systems.

JUSTIFICATION--To adjust the value representation in a field to either
the right or left boundary (margin).

    LEFT JUSTIFY--Adjustment of a value representation to the left
boundary (high order) of a field.

    RIGHT JUSTIFY--Adjustment of a value representation to the right
boundary (low order) of a field.

NON-SIGNIFICANT CODE--A code that provides for the identification of
a particular fact but does not yield any further information, e.g.
random numbers used as codes. Contrasted with significant code.

NUMERIC VALUE--The expression of a data item which denotes a mea-surement, count, or mathematical concept, usually represented by numerals and a limited number of special characters (i.e., plus (+), minus (-), decimal point (.), comma (,), asterisk (*), and slant (/)).

PADDING--A technique used to fill a field, record, or block with dummy data (usually zeros or spaces).

PRIMARY DATA ELEMENT--A data element or elements that is/are the subject of a record. Usually the other elements, called attribute data elements, qualify or quantify the primary data element (e.g., in a personnel field, the element(s) that is/are used to identify the individual are primary; other elements such as "Date of Birth" and "Mailing Address" are attribute data elements).

RADIX POINT--A character, usually a period, that separates the integer part of a number from the fractional part. In decimal (base 10) notation the radix point is called the decimal point.

RECORD--A collection of related elements of data treated as a unit.

RECORD INDEX--An ordered reference list of the contents of a record together with keys or reference notations for identifying and locating the contents.

RECORD LAYOUT--A description of the arrangement and structure of information in a record, including the sequence and size of each identified component.

RECORD LENGTH--A measure of the length (size) of a record, usually expressed in units of characters, words, or bytes.

RECORD LENGTH TYPE--An indication of whether the records of a file are fixed or variable in length.

FIXED LENGTH RECORD--Pertaining to a file in which the records are uniform in length.

VARIABLE LENGTH RECORD--Pertaining to a file in which the records are not uniform in length.

REPRESENTATION--A number, letter or symbol used to express a particular concept or meaning. It may be in the form of a name, abbreviation, code, or numeric value.

ROUNDING (ROUNDOFF)--To delete the least significant digit or digits of a numeral, and to adjust the part retained in accordance with some rule.

SELF-CHECKING CODE--A code that is appended to another code to provide for validity checking. A self-checking code is derived mathematically from the characteristics of the base code.

SIGNIFICANT CODE--A code which in addition to identifying a particular fact also yields further information, e.g., catalog numbers in addition to identifying a particular item also often indicate the classification of the item. Contrasted with non-significant code.

TRUNCATE--To delete characters from a character string, usually from either end of the string.

TYPE OF CODE SIGNIFICANCE--An indication of the type of significance that a particular code yields.

 COLLATING SIGNIFICANCE--A code designed in such a way that it facilitates ordering of the coded item.

 MNEMONIC SIGNIFICANCE--A code designed in such a way as to facilitate the human recall of the name of the coded items.

 CLASSIFICATION SIGNIFICANCE--A code designed in such a way as to facilitate the classifying of the coded items into classes and sub-classes.

VARIABLE NAME DATA ELEMENT--A data element that identifies a set (array) of similar values (data items). By varying certain identifiers in the name the entire set (array) of values can be identified. For example, a set of values that give population by State and Year could be identified by the data element "Population of (State) in (Year)" where State and Year are variable names. The variable names are used to identify particular values in an array (e.g., "Population of

(New Jersey) in 1970" was 7,168,164.)   In this example "New Jersey"

and "1970" are variable names used to identify a specific value

"7,168,164" in an array.